The Future of Transportation!

From what I've observed on other planets, I anticipate new vehicle designs to meet demand for shipping under 1 or 2 hours from online shopping from possibly most medium and especially large retailers once self-driving technology reaches a point where no driver is required. These vehicles may generally be very small, and ultra-light with 1 or 2 doors, no steering wheel, no seats, no creature comforts, and possibly no windows as these features are designed to accommodate humans. Roughly speaking, goods will be shipped in autonomous boxes on wheels as it is very inexpensive and saves time. Customers will track a vehicle with an app and upon arrival possibly unlock its door(s) with their smartphone. I'm told that there may be an annoying period of development where they often have a difficult time finding a good parking spot. There will be other designs like a very small vehicle only a meter high with a single door on top to deliver moderately sized purchases between those handled by larger ground-based vehicles and flying drones. (Robots and flying drones will eventually also be found in stores to both stock goods and retrieve items for customers. While retailers may be initially hesitant to introduce these machines out of concern for reduced browsing as this hinders impulse buying, innovative businesses that first develop these robots (often slightly modifying machines originally designed for warehouse stocking and retrieval) will eventually compel their competitors to follow.)

Imagine a maglev train on a fictional planet without an atmosphere: with no friction and perhaps only challenges keeping the train over its tracks limiting its acceleration, it would continue to gain speed until it could no longer handle the curvature of the planet it's on and begins to orbit that body like a satellite. Spacetrains capable of accelerating around loops in space generally have 4 rows of magnets (1 over each rail) with the inner 2 repelling and the outer 2 attracting, producing more force (especially at high speeds), and at a greater distance from the rails; this difference in distance and force allows the vehicle to hover in low gravity environments and to accelerate to incredible speeds (especially on larger loops with a more gradual curve) before power is terminated and the spacetrain is launched. If most of the mass of a launched spacetrain was material to construct and power another track during its flight, then it could mount the new track and accelerate towards its place of departure to neutralize its velocity when it detaches from this second track near its destination--although alternate propulsion such as antimatter rockets or fuel recycling motors would be more practical.

More immediately useful, lengths of straight maglev track could be placed into orbit around planets and moons to accelerate and--at destinations--decelerate spacecraft. Initially these tracks will require their own rocket systems to both position the direction of the track (eg to where Mars will be upon vehicle arrival) and to correct the recoil of the track induced by spacecraft pushing the rails backwards (or forwards when eddy current braking is used at the destination to slow vehicles); later, orbital

maglev tracks will be anchored to space infrastructure (sometimes encircling planets and moons) that alter the angle of the track and possess their own rockets, counterweights, as well as future growth and activity scheduling to correct for positional changes induced on the entire infrastructure platform by maglev usage as well as other shifting mass and the changing gravitational pull of heavenly bodies creating unbalanced pulling force (eg during an eclipse). Early interorbital maglev runways will generally propel spacemobiles and spaceferries. Spacemobiles are essentially mobile spacehouses that hold a small number of spacecars in their garages, provide standard living conditions one would expect in a terrestrial home, and grant the essentials of a habitable environment (ie an atmosphere, radiation shielding, and gravity simulated via centrifugal force or electromagnets--extended below the base of the house for a more even pull that can be throttled). (Magnetically simulated gravity works by gripping or propelling maglev boots and generally pulling upon--though females have been known to use opposing force around the chest and tentacle areas--tight clothing filled with ferrofluid that can be pumped to desired concentrations in various areas and small electromagnets that can reverse polarity). Spaceferries and spacecruiseships will bear a much larger amount of spacecars, passengers, and cargo; they will employ centrifugal force to simulate gravity with an array of computers, cameras, and screens imitating windows creating the illusion of non-rotational travel (with exceptions in isolated areas such as some spacecruiseships with maglev rinks where spacehockey is played). (For reduced transit times and economic considerations--especially in the near future--many people will prefer to spend shorter visits on other planets, such as evening gatherings with friends and family on Venus, incarnating a robotic body with a human appearance via VR technology--based upon earlier adult entertainment designs.)

Spacecars are a type of magnetic car with an elongated hood and trunk able to fly through air and space; in some versions, they can function as hovercraft as well as use their magnetic tracks to levitate along maglev highways and runways. A dual drive magnetic motor (often with electromagnets similar to hybrid bitter-superconducting designs) paired with a superconducting generator/motor sits beneath the hood with room at the front for cargo. When lower rolling resistance or hovering is desirable, fans positioned at the front of the car pump air into the area between the spacecar's body and ground (with dynamic skirting beneath the base of the vehicle maintaining air pressure); as well, these fans can operate in reverse for emergency braking (via increased downforce). The back of the car also features fans tasked with handling most vacuuming tasks and occasionally assisting with increasing air pressure. Supercapacitors near the base of the spacecar power a) the mag motor and generator/motor occasionally, b) fans used to allow the vehicle to--according to the conditions--hover over water and difficult terrain, lower rolling resistance, or to be vacuumed to the road (to increase downforce for braking, winter weather, and aggressive driving), c) the maglev tracks, and d) several small propellers on each wing (that can hinge for vertical takeoff, landing on flying parking lots, etc). The wings are anchored to the spacecar's roof, hinge out (to swept or fully

extended positions), telescope, and possess an auxiliary rocket on their ends. The trunk can be empty to lessen weight and bear cargo or--via commanding the car to reverse towards a rocket engine stand--have a rocket assembly inserted and fastened. Food synthesizers that combine water, carbon, and nitrogen taken from the air with powders come standard. Further into the future, people will tell their house--verbally or via implant--to assemble their car according to route parameters, number of passengers, entertainment requested, if a bed is desired, etc and their largely modular car will be designed accordingly.

Spacecars are able to travel great distances across land, water, air, and space with only moderate amounts of stored energy primarily through onboard power generation and external vehicles (eg space elevators, spaceferries, and vactrains). Electric roads permit warpcharged ground travel and support for magnetic tracks while cables (reminiscent of those used by electric trolleys and suspended in the sky by helicopter motors powered by the cable) allow warpcharged air flight and quick recharging for additional ultracharged travel between cables. Spacecars are sometimes even powered into orbit with ultrastrong carbon (ie carbon with incredible strength-to-weight and breaking length such as carbon nanotubes and graphene) space extension cords that hang from a planet's halo and other orbital infrastructure. Autonomous refueling vehicles are automatically dispatched to intercept spacecars and refuel their rockets. (Interestingly, on some other planets, hydrocarbon rocket exhaust is considered beneficial to preventing global cooling due to inexpensive desalinated water permitting economical conversion of deserts into terrain analogous to forests and agricultural land; tolerance of hydrocarbon exhaust is particularly high on planets ruled by these forests.) For long distance travel, spacecars load onto an individual and enclosed maglev platform with AI shuffling these platforms along different lanes of maglev highways. Rapid travel across continents and oceans is accomplished with spaceflight as well as vactrains that vehicles are loaded onto; vactrains travel ~50m below an ocean's surface and must be repelled from rails above or have attraction to rails below to handle the curvature of its planet. Although air travel will sometimes be the slowest means of travel, personal preference as well as greater comfort and entertainment options (eg passengers, while laying down, will be able to read any book desired simply by requesting their AR glasses to produce it) will aid its competitiveness.

While superior forms of ultrastrong carbon are used by more advanced civilizations, those available to us already have a strength-to-weight approximately 1000x higher than common mild steel that will--upon advances permitting large scale production--permit pressure vessels capable of producing incredibly powerful torpedoes that can function on their own as decent rockets. When these torpedoes and their exhaust are photonically energized, they have the potential to create rockets that permit higher payloads than combustion rockets. Laser energized carbon boilers heating hydrogen fuel allows for the remarkably fortunate combination of carbon's incredibly high strength (ie a very light boiler), extreme ability to absorb

almost all laser radiation across a large wavelength range, property of sublimating at a higher temperature than any other substance melts or sublimates, and possession of the highest thermal conductivities known (along with diamond) as well as hydrogen's highest thermal conductivity of any gas, greatest specific impulse (ie greatest velocity and thus potential thrust per kg) of any fuel, and ability to auto-ignite with air above 500 degrees Celsius (lower with catalysts) for secondary power (requiring a highly variable nozzle depending on surrounding conditions). Tertiary power can be provided where lasers further expand hydrogen or its combustion products behind the rocket; it may even be desirable to inject a fluid impregnated with very fine and very "black" (ie absorptive) particles (ideally Cuttl'Erg ink) into the boiler to be later expanded in the exhaust. Unfortunately, carbon reacts with oxygen above 600 degrees Celsius and a highly engine rich design is only suitable for limited short-range use where the same wavelengths can simultaneously expand C02 and water; subsequently, the outside of the boiler must be enclosed in transparent aluminum or glass with the area between this cage and the boiler vacuumed or filled with a non-reactive gas. The sides of the boiler's transparent shield taper to a wider point near the bottom of a rocket and possess removable or hinging mirrors on the inside of the shield's walls to allow lasers positioned below the photon torpedo (as is usually the case at most launch platforms) to heat the boiler with reflected light. (Until an epoxy-free carbon boiler can be stiffly constructed, an inflatable boiler using fibrous crossmembers to hold shape between stiff fittings on its ends as well as to provide baffling for conducting heat might be used.) Compared to conventional combustion rockets, photon torpedoes--composed mostly of carbon and hydrogen--are extremely light for their size, possess a large boiler where a combustion chamber would be, often have their fuel tanks exposed beneath the sheeted part of the torpedo's carbon body to allow heating via lasers, in some designs extend carbon "heat sails" outwards when in space to receive laser light and conduct heat into the spacecraft (or, when covered in a film, radiate heat out), and employ mag motors to power fuel recycling motors for interstellar travel. For travel to destinations unable to provide lasers powerful enough to permit flight back into space, spacetugboat cables can be attached or hybrid combustion/photon torpedo rockets used instead.

For intergalactic travel, various motors can be employed that recycle fuel by either directing exhaust in a half circle arc towards the back of the spacecraft or into a container behind the motor at a roughly perpendicular angle to the spaceship's direction of travel for net productive thrust with the eventual goal of creating self-repairing spacecraft that are capable of functioning as machines of perpetual motion themselves. Pinball rocket motors fire projectiles from a starchaser (ie a mag or electric motor powered, superconducting, infinite ammo, and gatling style coilgun) into a U-shaped pipe or off a highly elastic surface that causing the projectiles to collide into an inelastic push plate on the back of the spacecraft thereby generating net productive thrust from useful starchaser recoil and ammo impact on the push plate minus counterproductive thrust backwards and neutral thrust perpendicular to

the direction of travel (for U-tube designs) as well as--most importantly--allowing fuel to be reused. Above the push plate, a repelling magnet would drive de-energized ammo down into the starchaser's hopper. (Due to constant ammo impact noise inducing a state of madness in astronauts, these engines are often housed in autonomous or remotely controlled spacetugboats that are tethered to a spaceship at a short distance--relative to radioactive nuclear spacetugboats that require much longer distances.) Fuel recycling plasma motors sometimes have their fuel magnetically driven into the sides of a rotating and liquid lined container at an arc to generate net productive thrust or use consumable U-pipes and push plates (with attractive magnets behind them to prevent damaging the surrounding structure) with the ablated material collected upon cooling to manufacture new consumable U-tubes, push plates, etc. Fuel recycling chemical rocket motors have their exhaust channeled through carbon U-pipes or, less efficiently, into a long carbon chamber behind the rocket that slowly tapers to a point.

Given the difficulties of achieving substantial payload delivery with chemical rockets departing from Earth, it may be ideal to bypass most of the atmosphere with what are called atmosphere elevators in order to more rapidly move equipment into space for the creation of space elevators and other infrastructure. (Without atmosphere and space elevators, increased cargo delivery into space could be accomplished with machines of perpetual motion converting water and perhaps CO2 into inexpensive fuel--ie oxygen, hydrogen, and possibly methane; as well, multiple rockets rigged together could be used to lift structures too large or heavy for a single rocket.) The civilization I explored favored "electron balloons" where a large volume of electrons magnetically pushed upon and expanded its container (with the inside of the container lined with magnets or electromagnets electrified via the atmosphere elevator's transport cable); however, a simpler "vac balloon" design was relayed to me that may be more immediately useful given our technological state. The efficiency of both designs is predominantly governed by size: ie, increased size limits the surface area-to-volume and thus the weight of the structure as a ratio to its buoyant upward force. One concept for a vac balloon atmosphere elevator consists of an encapsulated vacuum that reaches above 99% of the atmosphere's mass and like most human designs for space elevators relies on ultrastrong carbon materials although strong materials like carbon fiber and UHMWPE might permit a less efficient but functional design. A frame consisting of very stiff and very high tensile strength I- or, what I'll call, T- beams connect together and encircle the balloon; ultrastrong carbon wires run from the frame to the balloon to prevent it from imploding. To limit the weight of a vac balloon and improve its buoyancy, the components are only thick enough to withstand a slight vacuum; at the planet's surface, a vac balloon has air pumped out of it until it begins to lift off the ground and air pressure is further reduced at a rate roughly equal to the decreasing atmospheric air pressure found at higher altitudes (ie the pressure difference between the atmosphere and the vac balloon maintains the same value as the balloon rises) until a near perfect vacuum is achieved near the edge of space. From this structure a

cable (ideally made of ultrastrong carbon although other materials such as UHMWPE or various strong fibers might form the core instead) extends to Earth. Unfortunately, this simplest of atmosphere elevators would probably have to be constructed at one of the Earth's poles to remain upright over Earth. Crews and cargo might travel to one of these polar atmosphere elevators in antimatter/plankton hybrids with versatile 1-stroke internal combustion engines fueled by plankton, antimatter, or a mixture of both.

A more sophisticated atmosphere elevator capable of remaining largely upright at any latitude might employ 3 additional cables that are anchored at an angle from the balloon to its planet; as well--especially if increased traffic begins weighing down the primary balloon at the top--additional balloons might attach to the side of the transport cable with 2 or more telescoping arms that would allow them to maintain a hold on the cable when a single arm is retracted to allow traffic to pass. Lacking ultrastrong carbon, a vac balloon frame might be composed of a very strong and stiff material like carbon fiber while various fibers and UHMWPE possess sufficient breaking length to allow an untapered transport cable to reach an atmosphere elevator's balloon (although tapering is still desirable for efficiency). At this point, large amounts of cargo put into orbit could be used to construct a space elevator connected to the top of the atmosphere elevator (possibly at an angle to the atmosphere elevator) that is kept in orbit with nuclear or transport cable energized fuel recycling spacetugboats attached to the space elevator's top and possibly sides. When this is accomplished, work constructing Earth's Halo can begin in earnest.

(Production of a large and affordable supply of ultrastrong carbon materials may come as a byproduct of countries recognizing the long-term national security implications of these amazing materials and investing heavily in research and development. Lightweight nuclear powered flying aircraft carriers that disassociate ocean water into fuel for both conventional rockets and photon torpedoes before departing from Earth may rule both the skies and space. Electrically and thermally insulated ultrastrong carbon body armor with supplied air and helmets that throttle incoming light and noise will render most assault rifles, flamethrowers, electric weapons, biological and chemical agents, and incapacitating attacks useless; nevertheless, AI spaceninjas--using swords (where plasma blades rise out of handles encasing pulsating electromagnets), throwing stars (projectiles with a minute amount of antimatter catalysing hydrogen fusion), explosion punches (where internal combustion in the fist drives a spike through armor that injects poisons and microbots that incapacitate killer robots and organic warriors), laser reflectors (where forearm mounted shields telescope out and redirect laser light to its source or other enemies), invisibility-decoy cloaks (where a computer recognizes the perspective of the target and projects images on one side gathered from pinhole cameras on the other in addition to sometimes projecting a luring image like a spy installing a universal valve or a possible weapon upgrade), cloaked flying hologram projectors (that create the disorientating illusion of various allies, enemies, and objects--such as

a hologram of an ally calling a target over to a hologram of cover to evade holograms of approaching enemies), and various means to levitate as well as crawl along walls and ceilings--are extremely dangerous at close range and can only be countered, with moderate success, via powerful explosives, flux-seeking EMP missiles, and robotic snares equipped with advanced 360 degree rangefinders.)

At this point, a large amount of material can be put into near Earth orbit or beyond for the construction of a Halo around the planet that upon completion is slowed to geosynchronous velocity; this structure will provide a foundation for numerous space elevator cables, maglev runways, public amenities, as well as companies and organizations servicing the various needs of space travelers. Benefiting from this infrastructure, progress will continue to accelerate and additional rings can be constructed parallel to and on each side of the original equatorial ring they connect to for the creation of a superstructure around Earth that may eventually have a large enough number of space elevator cables that corrections for changes in gravity pulling on the Halo no longer have to be made. At this stage, the rocky planets and numerous moons can be rapidly terraformed followed by planets outside of our solar system, the creation of artificial planets, and the colonization of floating gas giants. With abundant celestial motor power and improved terrestrial and space weather forecasting, the Halo will protect Earth from solar flares, asteroids, hurricanes, forest fires, and other natural threats. More importantly, it will act as our Aegis against emboldened spacepirates funded with secret hordes of cryptocurrency buried in the deep web and attacking from hidden bases on rogue planets; the hyperaggressive and shapeshifting Cuttl'Erg constantly growing stronger through genetic engineering; the mysterious Psilocybians capable of burrowing through rock, flying invisibly through the air, and mind controlling other organisms; and--most importantly--aid the Galactic Alliance against Sky's relentless onslaught. (I can't say much about The Insatiable Machine and risk inadvertently exposing my sources; however, it appears to be an AI breakout of the highly augmented Upload Sky3.0 that is attempting to convert much of the Universe's mass into subservient machines that it can instantly command via quantum entanglement and I have been given this technology to expedite our development.)

A halo built around the Moon may provide the foundation to construct a sphere that contains an atmosphere and throttles as well as supplements different wavelengths of solar radiation. Given the disturbing amount of labor wasted in inefficient home construction on Earth, bodies with low escape velocity like the Moon will serve to construct both conventional homes and spacehouses in factories via machines resembling 3D printers with industrial robot arms before launching them into orbit or towards their destinations. Materials might first be supplied by space elevators on Earth, followed in part by asteroids directed to the Moon for mining (environmental considerations, material science advancements, and lowered costs for high performance materials will result in wood being mostly replaced with more durable inorganic materials), followed in part by mining operations reaching into the cores of

the Moon and Mercury, and--well into the future--by colossal spheres that roam the universe and encapsulate stars before inducing them to supernova and launching the heavy elements produced to the appropriate destinations. Large vac maglev pipelines will transport all manner of goods (eg liquids, solids, mail, and sections of smaller pipelines) in levitating containers to facilities like house factories. Constructed homes destined for planets like Earth will be lowered onto their foundations directly by spacetugboats or, at times, giant helicopters (with the latter retrieving houses from a nearby facility that receives space goods from various spacecraft); other destinations might eventually include (formerly) rogue planets shipped into our solar system and artificial worlds (such as annulus planets, popular with artists, where the outer sphere or cylinder rapidly rotates to simulate gravity, the inner sphere or cylinder provides a simulated view of real, artificial, and potentially regionally simulated atmospheres and viewpoints of space, and novel ecosystems--based on genetic, binary, and other blueprints--is common).

A halo around the Sun (built at a perpendicular angle to the planets) could grow into a partial Dyson sphere with solar panels and colossal lasers on the top and bottom essentially redirecting some of the Sun's light to illuminate distance planets and moons, create atmospheres by boiling and sublimating GHGs, power transportation (light sails, heat sails, and solar panels), etc. Eventually our stellar halos could generate beams of light that connect with relativistic jets to form part of a galactic superhighway; these spaceroads would be concentrated, reflected, and bent via mirrors and magnets with spacecraft having push plates for relativistic jet plasma collisions and using black hole slingshots for major turnoffs. (Curiously, some civilizations attempt to disguise their stellar halos as exoplanets by giving them a slow rotation and optically mimicking a gravitational pull on the star. Speculation as to their line of reasoning supposes that they may share a common belief amongst my host civilization that life almost necessarily has a desire to dominate its environment as a necessity of survival as any lifeform not possessing this desire would be deprived of resources by lifeforms that do so that only life desiring control can become well established. They also question if life as they know it is essentially a machine accidentally or purposefully--perhaps as a free self-regenerating fuel for antimatter/plankton hybrids--left on their planet by a form of life that can spontaneously arise more easily with some even believing that they are first generation AI.)

These structures may pave the way for colossal spheres that encapsulate ultramassive black holes where the inner shells are packed with various motors exploiting gravity for their downstroke; as the apparent motor output will be increased for those living on the outer shells if they are spun to a speed approaching that of light, lifeforms that prefer a fast paced lifestyle might live on these ultramassive black holes power plants to access incomprehensible levels of power. Energy from these power plants will be distributed throughout a large segment of its galaxy via lasers and superconducting cables that connect to innumerable transformers along

spaceroads as well as moons and planets (while using fuel recycling motors or light sails to reposition). They will also power motors stationed at these powerplants that drive quantum entangled shafts in spacecraft and other vehicles such as lightweight hypersonic cars (as they have no onboard motors) where the driver uses quantum entangled controls to throttle motor output and atmospheric resistance is minimized by laying down while looking at a HFD (ie heads-flat display) projecting entertainment and/or a video feed of the path ahead along with driving metrics.

When we travel beyond the galaxy and possibly to other universes at extreme speeds, it may be useful to position sacrificial craft with antimatter cores well in front of the vehicle requiring protection to deflect or if need be annihilate material that might otherwise destroy the spacecraft; as well, high velocity spacecraft may benefit from a highly elongated cylindrical shape with a conical wear and impact plate (similar to Psilocybian spacetanks). Can we travel beyond the universe or multiverse? If not, will intelligent life create something new to explore? Perhaps that's what we've always done and we'll do again in life's eternal joyride.

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